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(54) Title of the Device Mosquito repellent apparatus

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(56) Reference Literature
Japanese Utility Model Publication (Kokoku) No. S59-35091 (JP, Y2)
Japanese Utility Model Publication (Kokoku) No. S60-10388 (JP, Y2)

(57) Scope of Claims of Utility Model

In a mosquito repellent apparatus that captures by attracting a mosquito by means of an attracting lamp, and feeding that mosquito into the interior of an insect capture filter by means of the air current of an air blast fan and a suction fan, a mosquito repellent apparatus characterized in that an upper part cover is provided near the attracting lamp, and in the interior thereof a carbon dioxide supply means, a heater, a humidifier and a control means thereof are housed, and an air flow similar to exhalation is caused to occur close to the above-mentioned attracting lamp.

Detailed Explanation of the Device

Technical Field of the Device

The present device relates to a mosquito repellent apparatus for the purpose of actively attracting and capturing mosquitoes using the phototaxis of mosquitoes and the property to the effect that the blood-sucking activity becomes active with respect to the proper amount of exhalation (carbon dioxide) of a human.

Prior Art

As devices that attract and capture wind-borne harmful insects, ones that attract harmful insects by means of an attracting lamp with light wavelengths of 350 ~ 500 nm, and then capture them with the wind force of air blast and suction fans have been used in the past. However, those devices have a uniform effectiveness with respect to harmful flying insects that have phototaxis across the board, but with respect to mosquitoes that have a specific behavioral character other than phototaxis, for example, the Culex pipiens pallen Coquillett, they do not always have a sufficient effectiveness.

Purpose of the Device

Accordingly, the purpose of the present device is to target, particularly, mosquitoes, even among harmful flying insects, and to make use of phototaxis, which is a characteristic thereof, as well as the characteristic that the blood-sucking action is activated with respect to exhalation, and to strongly attract and capture in a capture filter, mosquitoes close to an attracting lamp.

Summary of the Device

Accordingly, the present device provides on the inside of an upper cover a carbon dioxide gas supply means and an air blast fan turned in the direction of an insect capture box, and provides a suction fan at the lower end of the insect capture box; furthermore, an attracting lamp and a reflecting plate are provided at the connection part of this upper cover and insect capture box.

The above-mentioned carbon dioxide gas, at the time of insect capture, passes through the space of the attracting lamp as air with components similar to that of exhalation, and flows into the insect capture box. At this time a mosquito is strongly attracted to the space near the attracting lamp due to the mosquito's natural tendency to approach that air that is similar to exhalation. Between these, the airflow from an air blast fan passes by an attracting lamp and is sucked into an insect-capturing filter inside the insect capturing box, so that mosquitoes that are nearby are captured in the interior of the insect-capturing filter together with the airflow.

Constitution of Embodiment

Below, the constitution of the present device is concretely explained based on the drawings.

Figure 1 and Figure 2 show the constitution of the mosquito repellent apparatus 1 of the present device.

The mosquito repellent device 1 is constituted by means of a stand 2, an insect capturing box 3, an upper cover 4 and an attracting lamp 5 as the main parts.

The above-mentioned stand 2 forms a base 2b on the lower end of a pole 2a of a funnel-shaped hollow body, and to the upper end of that pole 2a a cylindrical insect capturing box 3 is attached.

In this insect capturing box 3, from the upper to the lower of the interior thereof, a check valve 6, an insect capturing filter 7 and a suction fan 8 are sequentially accommodated. Here, the insect-capturing filter 7 is shaped like a container, and the opening thereof is attached by means of a fastener 10 to the attachment member 9. On the side surface of the insect capturing box 3 an opening and closing door 11 is provided in a single swing-type system arranged so that when it is open, an operator can attach and detach the above-mentioned insect capturing filter 7 from the outside for the purpose of replacement.

Furthermore, the suction fan 8 is attached to the lower base of the insect capturing box 3. The suction opening 12 thereof is directed toward the center of the interior of the insect capturing box 3, and an ejection opening 13 is directed toward the inside of the pole 2a in the downward facing state, and also toward a transit opening 25. Furthermore, the check valve 6 is

made of a rubber sheet, for example, attached to the above-mentioned attachment member 9 in a state that blocks the opening part of the insect capturing filter 7, and is made so as to flexibly deform and open at the time of the suctioning of the suction fan 8 by means of the suction force thereof.

On the other hand, the upper cover 4 is attached to the upper edge of the insect capturing box 3 via multiple hollow connection poles 14 set up along the outer edge thereof. In the interior of this upper cover 4, to the upper side thereof, a heater 15, a carbon dioxide gas cylinder 16 as a carbon dioxide gas supply means as well as a flow regulating valve 17 are attached. Furthermore, to the lower side, a humidifier 18, a timer 19 as a control means and an air blast fan 20 are attached, and the suction opening 26 of this air blast fan 20 is directed toward the inside of the upper cover 4, and the discharge opening 27 is turned in the direction of the insect capturing box 3.

Furthermore, facing downward from the lower edge of the upper cover 4, for example, two attracting lamps 5, and a green colored saran net-type reflecting plate 22 with a heater 21 attached are attached. Namely, these are in the position of being accommodated in the space surrounded by the connection poles 14.

Operation of the Embodiment

Next, the operation of the mosquito repellent apparatus 1 of the present device will be explained. This mosquito repellent apparatus 1 is set up outdoors or indoors and, when the attracting lamp 5 lights and light collects in the reflecting plate 22, mosquitoes are attracted to the reflected light thereof. Simultaneously, the appropriate amount of carbon dioxide gas 23 is supplied from the carbon dioxide gas cylinder 16 to the inside of the upper cover 4 by means of the flow regulating valve 17. This carbon dioxide gas 23 is heated and humidified by the heater 15 and humidifier 18, is mixed with air, becomes an airflow 24 similar to that of the exhalation of a human, and is sent to the lower part by means of the air blast fan 20. The air flow 24 sent to the lower part passes the attracting lamp 5 and the reflecting plate 22, and while the check valve 5 is open, further, in the state of being sucked by the suction fan 8, transits the insect capturing filter 7 and flows into the pole 2a.

That is to say, due to the fact that an airflow 24 similar to exhalation is caused to be generated in the space close to the attracting lamp 5, phototaxis and the activation of the blood-sucking action with respect to exhalation (carbon dioxide gas) that are characteristic of mosquitoes are promoted and the mosquitoes are actively attracted. Furthermore, since the reflecting plate 22 is heated to the appropriate temperature by the heater 21, mosquitoes are also attracted by the temperature thereof and attempt to stop on the surface of the reflecting plate 22. Mosquitoes attracted close to the attracting lamp 5 in this way are sucked into the insect capturing box 3 by the above-mentioned airflow 24 and captured by the insect-capturing filter 7.

Furthermore, part of the air flow 25 [sic: should be 24] that passes through the suction fan 8 and is sucked into the inside of the pole 2a, by means of the interaction with the air blast fan 20, forms a circulation flow and passes through the transit opening 25 formed on the outer circumferential side of the lower part of the insect capturing box 3, goes up the inner circumferential side of the inside of the insect capturing box 3, transits the inside of the connection poles 4 [*sic*] and circulates together with part of the carbon dioxide gas 23 inside of the upper cover 4.

Furthermore, a series of actions of the flow regulating valve 17, the humidifier 18, the heater 21, the air blast fan 20, the attracting lamp 5 and the suction fan 8 are opportunely controlled by a timer 19 as a control means. A captured mosquito is recovered and processed with the insect capturing filter 7 from the opening and closing door 11.

Of course, during non-operation a check valve 6 closes the upper surface of the insect-capturing filter 7.

Effect of the Device

With the mosquito repellent apparatus of the present device, because attraction based on an attracting lamp that uses phototaxis, and attraction that uses the reaction with respect to an air flow that is similar to exhalation are compounded, a mosquito can be actively attracted close to an attracting lamp and, in addition, because an attracted mosquito is reliably fed into a capture filter by this air flow, and can be captured in an inescapable state, the capture efficiency can be increased.

Brief Explanation of the Drawings

Figure 1 is a vertical cross-section view of the mosquito repellent apparatus of the present device. Figure 2 is a plane view of the present device in the state in which the upper cover has been removed.

1 Mosquito repellent apparatus
5 Attracting lamp
7 Insect capturing filter
8 Suction fan
20 Air blast fan

Figure 1

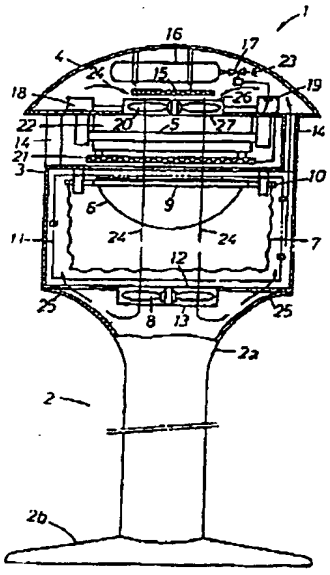
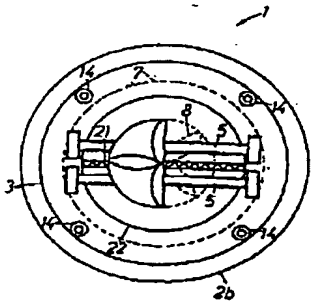


Figure 2



⑲日本国特許庁（JP）　⑪実用新案出願公開

⑫公開実用新案公報（U）　昭62－83477

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	1/08		6838－2B	

審査請求　未請求　（全 2頁）

⑤4考案の名称　蚊取り器

⑳実　願　昭60－176034
㉒出　願　昭60(1985)11月15日

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⑤2実用新案登録請求の範囲

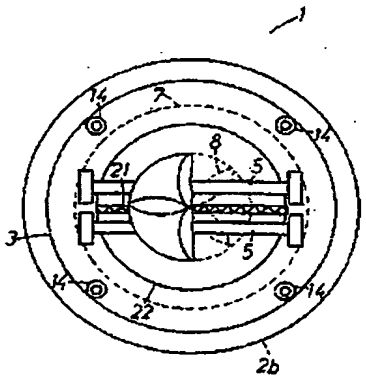
誘引灯により蚊を誘引し、その蚊を送風ファンおよび吸引ファンの気流により捕虫フィルターの内部に送り込んで捕獲する蚊取り器において、誘引灯の近くに上部カバーを設けて、その内部に炭酸ガス供給手段、ヒーター、加湿器およびこれらの制御手段を収納して、呼気に近い空気流を上記誘引灯の近くに発生させることを特徴とする蚊取り器。

図面の簡単な説明

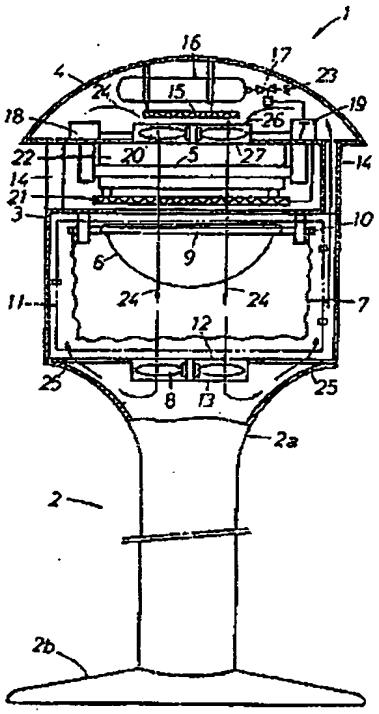
第１図は本考案の蚊取り器の垂直断面図、第２図は本考案の上部カバーを取り去った状態の平面図である。

１……蚊取り器、５……誘引灯、７……捕虫フィルター、８……吸引ファン、２０……送風ファン。

第２図



第1図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